

# CARNEGIE

*Magazine*



GEORGE BERNARD SHAW

*The time is now . . .*

to review your will (and other estate plans) because of the radical changes made in the principles of Federal taxation by the Revenue Act of 1948.

Although the income tax provisions of this Act have received much publicity, not so much emphasis has been directed to the important effects the Act has upon Federal Estate and Gift taxes.

For husbands and wives, this legislation has made possible reductions in estate and gift taxes, provided the requirements specified in the Act are fulfilled.

We urge our customers and other friends to consult with their attorneys in order to determine whether their present estate plans are consistent with the provisions of the Act.

If the officers of our Trust Department can assist you and your attorney in any consideration you may give to the review of your estate plans, they will be glad to do so.

**MELLON NATIONAL BANK  
AND TRUST COMPANY**

## CALENDAR OF EVENTS

### CARNEGIE INSTITUTE

4400 FORBES STREET, PITTSBURGH 13, PENNSYLVANIA

*Open to the public every day without charge*

MONDAYS 10:00 A.M. TO 10:00 P.M.

OTHER WEEKDAYS 10:00 A.M. TO 5:00 P.M.

SUNDAYS 2:00 TO 6:00 P.M.

FINE ARTS GALLERIES OPEN UNTIL 10:00 P.M. WEEKDAYS OCTOBER 14 THROUGH DECEMBER 12

#### FOUNDER'S DAY

reception in the foyer of Carnegie Institute Music Hall will mark the fifty-second anniversary of Founder's Day on October 14 at 8:30 P.M., with the trustees and heads of departments of the Institute welcoming members and friends of the Carnegie Institute Society. During the reception the winners of awards in Painting in the United States, 1948 will be announced, and the galleries will then be open for a preview of the exhibition.

#### PAINTING IN THE UNITED STATES, 1948

Generally accepted as the most important of the annual national art exhibits, Painting in the United States, 1948 will be on display at the Institute from Friday, October 15, through Sunday, December 12, from 10:00 A.M. to 10:00 P.M. weekdays and 2:00 to 6:00 P.M. Sundays.

Three hundred paintings by three hundred artists will be on display, providing a cross section of the various trends in painting in this country today.

Organizations may arrange for conducted tours through the exhibit by telephoning Margaret M. Lee at Mayflower 7300.

#### CURRENT AMERICAN PRINTS

The annual display of outstanding prints, selected from the annual Pennell competition held at the Library of Congress this past summer, will be exhibited on the balcony of the Hall of Sculpture at Carnegie Institute from October 14 through December 31.

This exhibition consists of lithographs, etchings, engravings, serigraphs, and woodcuts by the leading print-makers in America.

#### MONDAY NIGHTS AT THE INSTITUTE

Monday nights are to be featured this year as Carnegie Institute Night. The cafeteria will be open from 6:00 to 8:00 P.M., so that members of the Carnegie Institute Society may come for dinner. (Reser-

vations should be made in advance by telephoning Mayflower 7300 Extension 56.) The art galleries and museum halls will be open each Monday evening. A series of illustrated lectures and lecture-recitals will be presented in the Music Hall for Society members, which will be open to the public after 8:30 P.M.

#### ILLUSTRATED LECTURE SERIES

SPONSORED BY CARNEGIE INSTITUTE SOCIETY

MONDAY NIGHTS IN MUSIC HALL, 8:30 O'CLOCK

#### CHINA BY AIR—October 18

##### Captain "Bill" Odom

Captain Odom, who made a solo flight around the world in 1947 and piloted the Reynolds expedition to China last spring, will show his colored moving pictures.

The Hall will be reserved for members of the Society until 8:30 P.M., when it will be opened to the public, as on all Monday nights.

#### WORLD BELOW THE WAVES—October 25

##### Vincent Palmer

Mr. Palmer, whose reputation is established as the leading photographer of undersea films, will show

(Continued on page 85)

#### THE COVER

Jacob Epstein's bust of George Bernard Shaw has recently been presented to Carnegie Institute by Mr. and Mrs. Charles J. Rosenbloom. A collector and patron of the arts, Mr. Rosenbloom is a trustee of the Institute. The portrait of the famous Irish playwright and critic in gilt bronze, 24 inches high, was modeled from life in 1934. A description of the gift appears on page 77.

BEQUESTS—In making a will, money left to Carnegie Institute, Carnegie Institute of Technology, or Carnegie Library of Pittsburgh should be covered by the following phrase: I do hereby give and bequeath to (Carnegie Institute or Carnegie Institute of Technology or Carnegie Library of Pittsburgh) in the City of Pittsburgh, Pennsylvania.....Dollars

CARNEGIE MAGAZINE is dedicated to literature, science, and art and is published monthly (except August and September) at 4400 Forbes Street, Pittsburgh 13, Pennsylvania, by Carnegie Institute, Carnegie Library, and Carnegie Institute of Technology. James M. Bovard, editor; Jeannette F. Seneff, editorial assistant; Florence A. Kemler, advertising manager. Telephone Mayflower 7300. Volume XXII, Number 3, October 1948. Permission to reprint articles will be granted upon request. Copies regularly sent to members of Carnegie Institute Society. Subscription price \$2.00 per year. Single copies 25 cents.

# It began about 5000 years ago

*Glass-making, we mean.* There's a pale green cylinder of glass in the University of Chicago that they think dates from 3000 B.C.

So we like to think that our business began then, too. And that today, by manufacturing quality glass products for you to use in an infinite variety of ways, we are creating a fine new tradition for a very ancient art.

The Pittsburgh Plate Glass Company also specializes, however, in producing some of the most *modern* materials our civilization knows . . . materials peculiarly characteristic of the mid-twentieth century.

In Paints . . . the name "Pittsburgh," and the technology of Color Dynamics, are outstanding in the field.

In Chemicals . . . Pittsburgh Plate Glass Company is an important factor.

And in Plastics . . . the newest of them all . . . Pittsburgh Plate Glass Company has already won an important place.

When you need any of these products . . . glass, paint, chemicals or plastics . . . and wish to be sure of quality, we suggest that you use the "Pittsburgh" name as your buying guide.



PAINTS • GLASS • CHEMICALS • BRUSHES • PLASTICS

PITTSBURGH PLATE GLASS COMPANY

## *Something New Added*

We hope you like CARNEGIE MAGAZINE in its "new look." The splash of color on the cover and change in format give some hint of the gay colors and fascinating activity at Carnegie Institute this fall—in case you haven't visited us recently.

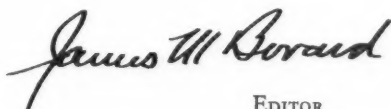
You may be surprised to find leading Pittsburgh financial houses and manufacturers represented by advertisements in this issue of the Magazine. Interesting as this addition is, it actually symbolizes a friendly response to the stern voice of financial necessity.

CARNEGIE MAGAZINE has been published continuously for twenty-one years by Carnegie Institute as a reflection of the cultural life of our community. The major expense of publication has heretofore been covered by income from endowment, but in the face of reduced income and increased cost this is no longer possible. We believe our Magazine has meant much and can mean increasingly more to our readers and to our civic life. We are, therefore, most grateful for the co-operative spirit of our friends in helping carry forward this project, and it is our earnest hope that the advertisements in CARNEGIE MAGAZINE will prove helpful both to them and to you.

The lists of committees and staff of the local Carnegie institutions, carried each month in the past, will appear as an occasional supplement.

CARNEGIE MAGAZINE will continue to be dedicated to the literature, science, and art of our community. We shall gratefully consider any articles our readers may wish to contribute. A very broad scope is possible, extending into music, drama, education, and civic development as they affect our everyday life. Suggestions for making our Magazine more vital will always be welcome.

We hope you will tell your friends about CARNEGIE MAGAZINE, and that you and they will visit us often at Carnegie Institute in the civic center of Pittsburgh.

A handwritten signature in dark ink, reading "James M. Borand". The signature is written in a cursive style with a large, stylized initial "J".

EDITOR

## THE SCIENCES IN PITTSBURGH

*Beginning a series of articles that will demonstrate Pittsburgh's contribution to science along many lines. Future subjects, which are also to be presented by local men of national reputation, will include Botany, Chemistry, Geology, Medicine, Paleontology, and other fields of research.*

### I. ASTRONOMY

BY N. E. WAGMAN



N. E. WAGMAN

FOR Pittsburgh, long known as the Smoky City, to be a center of astronomical activity would seem a paradox. We think of a large city as a deterrent to the study and appreciation of the stars—and, in a way, it is. But Pittsburgh has taken up the challenge, so that few, if any, cities can boast equal opportunities for its citizens to become informed in the field of astronomy, and no city has as large a group of amateur astronomers actively following this hobby. The Buhl Planetarium is one of five in the United States. In the Allegheny Observatory of the University of Pittsburgh the city has one of the leading research observatories of the world, and many of the world's largest telescopes come from the Brashear Company, now J. W. Fecker, Inc., on Perrysville Avenue.

#### A COMET SPLASHED

The unexpected splash of a comet has often marked the formation of a group interested in astronomy. And so it was that Pittsburgh astronomy got its start when the Allegheny Telescope Association was formed in 1859, the year after the appearance of Comet Donati. It was in no small way that astronomy was given a send-off in Pittsburgh, for the Association purchased one of the largest telescopes of the time—a 13-inch refractor—and mounted it in a permanent building. Thus was the Allegheny Observatory founded in 1860.

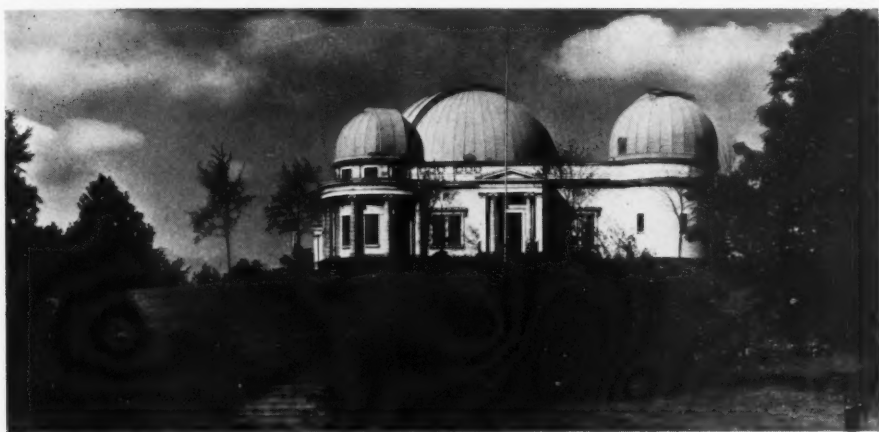
The Observatory became a research institution in 1867 when it was transferred to the University of Pittsburgh, then Western University of Pennsylvania, and Samuel Pierpont Langley was appointed director. Immediately the publication of Langley's researches on the sun carried the name of the University and the city around the world.

#### LANGLEY'S WORK

In 1869, when the knowledge of correct time was becoming more and more important, Langley originated the Allegheny System of sending clock ticks to railroads, city offices, and jewelers by telegraph. This system was copied by the United States Naval Observatory. It was the beat of the Allegheny Observatory clock, transmitted to Chicago, which signaled the adoption of Standard Time by the railroads of this country, on November 18, 1883. Pioneering researches in the invisible infrared light of the sun and the transmission of the sun's rays by the atmosphere led Langley to invent the bolometer, an electrical device which could measure temperature changes of one hundred-millionth of a degree. The Bessemer converter also figured in Langley's researches. By comparing the converter with the sun he was able to bring within reasonable limits the wild guesses of the

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Dr. N. E. Wagman, who came to the Allegheny Observatory in 1930 and has been director since 1945, has done considerable research in the field of stellar distances, particularly studying the distance of the Sun from observation of the minor planet Eros. A native of Saratoga Springs, New York, he received his bachelor's and master's degrees from Wesleyan University, Middletown, Connecticut, in 1927 and 1928, and his doctor of philosophy degree from the University of Pittsburgh in 1937.



THE STARS AND PLANETS ARE CONSTANTLY BEING STUDIED AT ALLEGHENY OBSERVATORY

sun's temperature. Just recently it has been decided to call the unit of solar radiation the "langley."

Langley was appointed secretary of the Smithsonian Institution, the highest scientific post in the country, in 1887. For a few years after that he returned to Pittsburgh to continue the experiments in aerodynamics which he had just begun beside the Observatory. His successes and failures in this field form a large part of the story of early aviation. An airfield and an aircraft carrier have been named for him.

A brilliant demonstration proving that the rings of Saturn are made up of separate particles was the high light of the Pittsburgh career of James E. Keeler, Langley's successor at Allegheny Observatory. Keeler subsequently directed the Lick Observatory in California, where his revelation of the value of the reflector-type telescope in astronomical research led to the construction of large reflectors now climaxed in the 200-inch.

#### "UNCLE JOHN"

During the terms of Langley and Keeler a man whose name was to become almost synonymous with Pittsburgh astronomy was becoming more and more interested in the Observatory. John Alfred Brashear, "Uncle John" to those who knew him, was working on his first telescope lens when he met Langley. In an effort to hold Keeler in Pittsburgh, Brashear attempted

to raise funds for a new observatory. But the Spanish-American war was going on and the singlehanded effort failed. By 1900, however, Brashear had raised enough money so that the cornerstone of the present building could be laid. Altogether nearly \$300,000 was raised at the time of the dedication in 1912. The 30-inch Thaw photographic refractor, 46 feet in length, was completed in 1914 and is to this day the finest telescope of its particular type in the world.

With the Thaw telescope, Frank Schlesinger, director from 1905 to 1920, began the work of determining the distances of the stars—a field in which the Observatory excels today. Schlesinger ended his astronomical service at Yale, during which time he was for a term president of the International Astronomical Union.

The most widely used texts in astronomy are those written by a pupil of Schlesinger, Robert H. Baker, who took his doctor's degree from the University of Pittsburgh in 1910.

Tracking the motions of pairs of stars revolving about each other, observing eclipses of the Sun in far corners of the earth, tracing the variations in light of winking stars, and establishing the precise lengths of waves of light from elements in the Sun and laboratory—these are some of the fields to which Observatory astronomers have made contributions in this century.



At present the Thaw refractor is being used in the field of precise positions of stars, planets, satellites, and minor planets. The most accurate distances, masses, and motions will be the results. Such knowledge is fundamental in the construction of the picture we are to have of the universe.

#### STUDY OF LIGHT

In the field of standard wave lengths, results have now been extended to the important infrared light region. A quartz spectrograph, on loan from Carnegie Institute of Technology, is being readied to produce improved wave lengths in the visible and ultraviolet region of light. Precision of one part in five million in the ultraviolet is the aim. Recent observations of the sun light from V-2 rockets at high altitudes have opened up a new region of the ultraviolet light for astronomical research.

With all its research activities, entertainment of visitors has always held an important place at Allegheny Observatory. On all nights but Sundays, during spring, summer, and fall, visitors make use of the 13-inch telescope and the lecture hall free of charge.

#### THE PLANETARIUM

A great addition to the opportunities for Pittsburghers to become familiar with as-

tronomy and science in general was the erection in 1939 of the Buhl Planetarium and Institute of Popular Science. Pittsburgh is now one of five cities in this country to have a Zeiss Planetarium that brings the heavens indoors where clouds and haze cannot interfere with the view. Sky shows are changed monthly so that many phases of the fascinating science of astronomy may be presented to the public.

Numerous exhibits, many of which are changed monthly, keep the public informed on new developments in various fields of science and technology. An arrangement with the schools makes it possible for many thousands of children to tour the Planetarium and come in contact with the various sciences in novel ways. Groups come from as far away as Cleveland, Erie, Altoona, and West Virginia. For the layman who wishes to start a hobby or further his interest in science, there are popular evening courses conducted by experts.

The Junior Science Fair, in which high-school students show their own exhibits, is one of the features of the Planetarium year. Scholarships in Pittsburgh colleges are offered as incentives to the youthful exhibitors. The winner of the Junior Science Quiz, broadcast in conjunction with the Fair, is awarded a scholarship to Carnegie Tech.

The Planetarium provides workshops for the Amateur Astronomers Association of Pittsburgh, and there the regular monthly meetings of the Association are held. In return the amateurs operate the People's Observatory, where evening visitors to the Planetarium may view the actual Moon, planets, and stars.

#### THE AMATEURS

The present Amateur Astronomers Association of Pittsburgh, a section of the Academy of Science and Art of Pittsburgh, was organized in 1929. It is the second oldest



POLISHING A LENS FOR HARVARD AT THE J. W. FECKER COMPANY



such group in the country, but the first in number of members—about 200. At one time 75 telescopes were in the process of construction by members. During the past year about a hundred persons were instructed in telescope-making courses at the Planetarium. This year a course in astronomy is planned principally for the benefit of the members of the association.

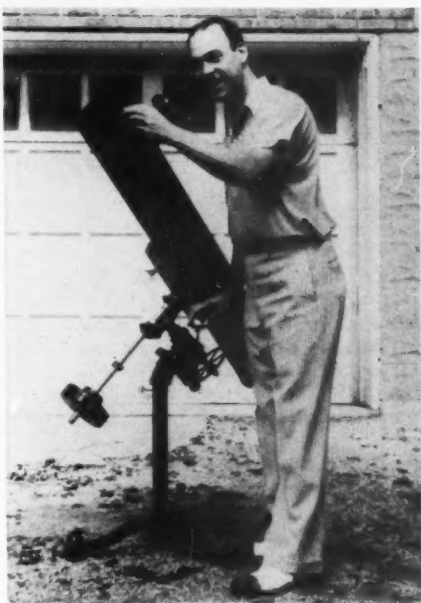
The local group has been host to amateur conventions on several occasions. Many exhibits have been organized—such as the one during the meeting of the American Association for the Advancement of Science in 1934. On that occasion the amateurs received nation-wide notice when Lowell Thomas told on his news broadcast how Einstein had snubbed the exhibits of professionals to pore over the displays arranged by the amateurs.

Real contributions to science have been made by some of the Pittsburgh group in design and construction of telescopes and in observational work with variable stars. Currently some members are building sun cameras for observations of the changing spottedness of the Sun. Such observations are now used in predicting the most suitable frequencies for radio transmission.

#### MANUFACTURE OF LENSES

Not only for research and popular interest is Pittsburgh known in astronomical circles. Throughout the world many of the finest and largest telescopes bear the Pittsburgh stamp. It all started when "Uncle John" Brashear had to choose between his job in the mills and his love for producing fine optics. The scales were tipped in favor of astronomy when William Thaw proposed to finance the beginning of the Brashear Company in 1881. Soon the flow of great telescopic lenses started. In 1914 the 30-inch Thaw lens for the Allegheny Observatory was finished. This is the third largest lens in the country.

In 1919 what was then the second largest telescopic mirror in the world, the 72-inch for Victoria, British Columbia, was completed. Now the firm is known as J. W. Fecker, Inc. Altogether five mirrors 60 or more inches in diameter and a multitude of smaller ones have been figured. Eleven lenses from 15 to 30 inches have been ground and polished. Large Pittsburgh telescopes may be found in Chile, Argen-



EDWIN S. HIDER, PRESIDENT OF THE AMATEUR ASTRONOMERS, WITH HIS OWN REFLECTOR

tina, and South Africa. Carnegie Tech owns a 12-inch Brashear lens.

At present the optical shop is busy with a 60-inch lens and mirror of the recently designed Baker-Schmidt type. This is for the Harvard Station in South Africa.

The practical use of astronomy in the world today is emphasized by the fact that fifty per cent of the work of the Fecker plant in the field of large optics and instruments is for military purposes. A telescope with three axes has been built for guiding a plane or missile through the stratosphere by starlight. A camera which will photograph a light on a plane forty to fifty thousand feet above ground has been made. More accurate bombing tables will result. Optics for photographing air waves around plane or rocket models in wind tunnels have been constructed. Aerial cameras matching the Thaw lens in size are proposed for photographing minute details from great heights.

And thus Pittsburgh, once called the Smoky City, makes its mark as an astronomical center on three fronts—telescope building, research, and popular interest.

## Celebrating Founder's Day

A RECEPTION for members of the Carnegie Institute Society and other guests will be given by the trustees and heads of departments the evening of Thursday, October 14, at 8:30 o'clock in the foyer of the Music Hall, celebrating the fifty-second anniversary of Founder's Day at Carnegie Institute.

The evening will be climaxed with the announcement by President James M. Bovard of prizes in the exhibition, *Painting in the United States, 1948*. The galleries will then be open for a preview of the paintings.

### THE AWARDS

The awards to be announced are: First Prize, \$1,500; Second Prize, \$1,000; and Third Prize, \$700. The jury is privileged, if it sees fit, to award not more than three Honorable Mentions with no monetary prizes. As usual, there will be a Popular Prize of \$200, but that will be awarded by the vote of the visitors during the two weeks preceding the final week of the exhibition, which will continue at the Institute through December 12.

### THE JURY

Three artists, Alexander Brook of New York, John Carroll of East Chatham, New York, and Luigi Lucioni of New York comprise the jury of award which met at Carnegie Institute on September 17 to select the prize-winning pictures in *Painting in the United States, 1948*.

### ALEXANDER BROOK

Alexander Brook was born in Brooklyn in 1898. As a boy of twelve he had a serious illness, and it was then, while bedridden, that he first became interested in painting. In 1915 he entered the Art Students League in New York and began his actual artistic education. He spent four years there, winning a scholarship and other honors, and working principally with Kenneth Hayes Miller, and also under the instruction of John C. Johansen, Frank Vincent Du Mond, George Bridgman, and Dimitri Romanovsky.

After leaving the League, Brook became

a penetrating student of painting, an author of interesting reviews and articles on art and artists, and assistant director of the Whitney Studio Galleries, where through his efforts many young artists obtained initial showings. He had his first exhibition at the Brummer Gallery in New York in 1922. In 1929 he was awarded the Logan Prize and Purchase Fund at The Art Institute of Chicago. On his first appearance in the Carnegie International in 1930, his painting *Interior* won Second Prize and the Albert C. Lehman Prize and Purchase Fund. The next year he was awarded the Temple Gold Medal at The Pennsylvania Academy of the Fine Arts and was granted a Guggenheim Fellowship. He received First Prize at the Los Angeles County Museum in 1934. That was the year in which Carnegie Institute presented a one-man exhibition of his paintings. He served on the jury of award for the 1935 International. In 1937 he won a Gold Medal in the American Section of the International Exposition in Paris, and First Prize and Special Merit of Award in the Seventeenth Annual Exposition of Advertising Art, New York City. He received First Prize in American Painting at the Worcester Art Museum and the Medal of Award from the San Francisco Art Association in 1938. In the 1939 Carnegie International his canvas, *Georgia Jungle*, was awarded First Prize and was purchased for the permanent collection of Carnegie Institute through the Patrons Art Fund. His paintings hang in most of the leading galleries of the country and in many private collections. Brook is a member of the National Institute of Arts and Letters.

### JOHN CARROLL

John Carroll has had a versatile life in which painting has been the main but by no means the only interest. At the present time, for instance, he lives the year round at his farm at East Chatham, New York, the better to devote himself to cattle-raising, and for recreation to follow the hounds. From 1930 to 1944 he was head of the art department of the Arts and Crafts Society in Detroit. Born in Wichita, Kansas, in 1892, while his rancher father



JOHN CARROLL



LUIGI LUCIONI



ALEXANDER BROOK

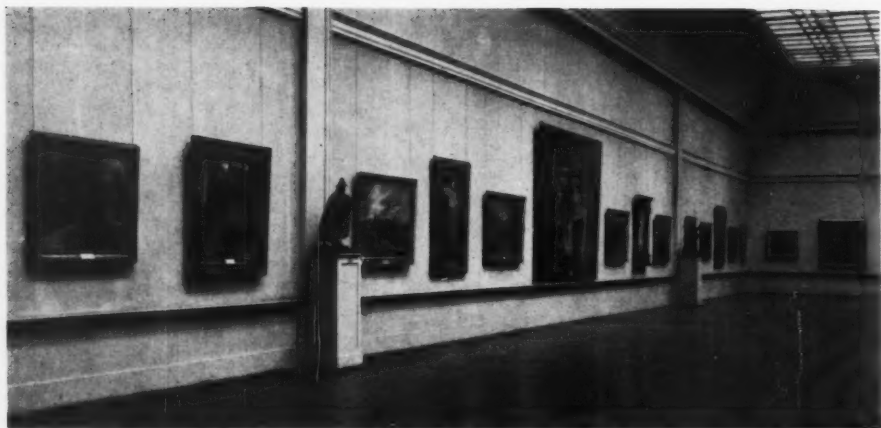
and family were en route to California, he grew up in San Francisco and finished two years of an engineering course at the University of California—with art courses at night at the Mark Hopkins Art Academy—before deciding that painting was definitely the career for him. He went to Cincinnati and studied six months with Frank Duveneck at the Art Academy and then, on our entry into World War I, enlisted in the Navy. After the Armistice he returned to painting and did anything he could to keep going, living in New York City, Woodstock, and eventually Detroit. He traveled in Europe in 1924 on the purchase prize money he received from The Pennsylvania Academy of the Fine Arts, taught at the Art Students League in New York the next year, and in 1927 received one of the first Guggenheim Fellowships and used it to travel in Europe again.

Carroll's paintings have been seen at the Carnegie Institute since 1922, and in the 1926 International he won an Honorable Mention. He was on the jury of award for the 1938 Exhibition. In 1944 the Institute purchased his painting, *Portrait of Mrs. Gordon Cox*, for the permanent collection. Other honors he has received include a Purchase Prize at The Pennsylvania Academy of the Fine Arts in 1924, First Purchase Prize at the Pan-American Exhibition at the Los Angeles County Museum in 1925-26, Harris Silver Medal at The Art Institute of Chicago in 1927, First Prize at the San Francisco Art Association in 1930, the Founder's Society Prize in 1935 and 1941

and Scarab Club Gold Medal in 1936 at the Detroit Institute of Arts, as well as several print prizes. His work has been acquired by the following additional collections: Whitney Museum of American Art; John Herron Art Institute, Indianapolis; Society of Liberal Arts, Joslyn Memorial, Omaha; the Detroit Institute of Arts, the Toledo Museum of Art; and the Newark Museum. He has also done frescoes for the Detroit Institute of Arts.

#### LUIGI LUCIONI

Luigi Lucioni was born at Malnate, a small town near Milan, Italy, in 1900. At the age of eleven he came to America with his parents, who settled in Jersey City. His first art instruction was received at Cooper Union, where he studied for four years, working for his living at the same time as a commercial artist. He later entered the school of the National Academy of Design, where he spent another four years, attending also a Sunday class in painting conducted by William Starkweather. In 1928 he was awarded a Tiffany Foundation Fellowship and the following year visited his native Italy, where he was deeply impressed by the Italian primitives. The Allied Artists Medal of Honor was awarded him in 1929, and he won the National Arts Club Prize for Flower Painting in 1939. In the 1939 Carnegie International his portrait, *Ethel Waters*, was awarded the Popular Prize. He also received First Popular Prize at the Corcoran Biennial, Washington, D. C., in



ONE OF THE PERMANENT COLLECTION GALLERIES AT THE INSTITUTE

1939 and again in 1941. Carnegie Institute purchased his landscape, *Vermont Pastoral*, through the Patrons Art Fund in 1940.

Lucioni is an accomplished musician and composer as well as a painter and etcher. His winter headquarters are in New York City, but he spends his summers in Vermont painting its high rolling hills—so like those of his own Northern Italy—and

its farms and farm buildings. He is represented in The Metropolitan Museum of Art, Whitney Museum of American Art, The Pennsylvania Academy of the Fine Arts, William Rockhill Nelson Gallery, Addison Gallery of American Art, Denver Art Museum, Fogg Museum of Art at Harvard University, and Dartmouth College.  
J. O'C., JR.

## MONDAY NIGHTS

It's to be open house each Monday evening at Carnegie Institute this year, with interesting color motion picture lectures, the art galleries and Museum to be wandered through, and dinner in the cafeteria from 6:00 to 8:00 P.M. for members of the Carnegie Institute Society.

The pictures will be shown at 8:30 each Monday night in Carnegie Institute Music Hall, with entertaining speakers to explain them. Enticing topics ahead include "Cavalcade of South America," "The Three-Eyed Artist," "The Story of the Organ," "Colorful Austria," and "Banana Country." Dudley Crafts Watson, Thomas Benner, Harry Holt Richardson, Alan Villiers, and Homer Kellems are among the well-known speakers. The Hall will be opened to the general public at 8:30 for space available after Society members are seated.

Members planning to enjoy the palatable food, quick service, and moderate prices of the cafeteria on Monday evenings should telephone MAYflower 7300, Extension 56.

### ART AND NATURE SHOP at Carnegie Institute

#### *Tropical Fish Handbook* by Guenther L. Schott

A booklet of information for the beginner containing illustrations and descriptions of tropical fish, goldfish, scavengers, turtles, and aquarium accessories. 25c

#### Bambino

Reproduction in ivory plaster of the appealing child's head by Donatello, 8 inches high. \$5.00.

#### Resurrection Plant

An odd plant from western Texas looking faded and dead when dry. Moistening causes its leaves to open and turn green even after months without water. 10c

#### Bear's Claws

The claws of a black bear. 20c each.

#### Nature Calendar for 1949

A limited number of attractive desk calendars showing 12 beautifully colored scenes from nature, 8 $\frac{3}{4}$ " x 9", are being printed, to be available by November 15. \$1.00 each, plus 10c for mailing. Order now to ensure getting yours in plenty of time for Christmas giving.

## A BRONZE BY EPSTEIN



JACOB EPSTEIN

A BUST of George Bernard Shaw by Jacob Epstein has been presented to Carnegie Institute by Mr. and Mrs. Charles J. Rosenbloom. Mr. Rosenbloom is a trustee of the Institute, a member of the Fine Arts Committee, and a patron of the arts. He is a collector of paintings, prints, and rare books. His notable collection of prints was shown at the Institute in 1938 and his paintings and a selection of his prints in 1946.

The bust of Shaw is cast in gilt bronze. It is twenty-four inches in height and nineteen in width. The head was modeled in London in 1934. The Carnegie Institute bronze is one of five copies cast, one copy being owned by the Tate Gallery. It is signed on the lower rear edge, "Epstein." Many critics think it is one of the best portraits the sculptor ever made, and it certainly is a notable record of a notable personage.

Jacob Epstein is, beyond doubt, the greatest portrait sculptor of modern times. He has done in bronze the heads of more celebrities than any other sculptor of his day. Lady Gregory, Augustus John, Muirhead Bone, the Duke of Marlborough, Joseph Conrad, Lord Fisher, J. Ramsay MacDonald, John Dewey, Paul Robeson, Haile Selassie, Albert Einstein, and Winston Churchill are only a few of them. His portraits are appreciated, but invariably his larger carvings arouse much controversy.

The bust of Shaw is a rugged piece of portraiture. The sculptor felt that it was an authentic and faithful rendering of the sitter physically and psychologically. He relates that Shaw sat for it with patience and even eagerness, but thought that the sculptor had made him a kind of primitive barbarian and that the head was really a projection of Epstein rather than Shaw. The sculptor has explained that he never

starts out with a definite conception of the sitter's character. His process is a natural one and not preconceived. His Shaw grew out of the character of the head, of which he made a close and intensive study. The work is full of plastic intensity, free and rugged of surface, and offers no concessions to the canons of conventional beauty. In this essay in portraiture Epstein proved himself an extraordinarily fine modeler. It has movement and life and a thinking quality which one must always associate with the sitter as well as the sculptor.

Jacob Epstein, who is usually referred to as an Anglo-American sculptor, was born on the East Side, New York, in 1880. He studied painting for a time at the Art Students League and later attended a modeling class at night. George Grey Barnard was his instructor. At seventeen he left America for Paris, where he studied at the Ecole des Beaux Arts and the Julian Academy. It was in Paris that he abandoned painting and turned to sculpture. He soon began to work in London and, on receiving a commission in 1907 to decorate the building of the British Medical Association in the Strand, settled in England where he has lived ever since with the exception of a long visit to the United States in 1927.

The story of Epstein is told in the following paragraph from *Vanity Fair* for February, 1924:

"The career of Jacob Epstein recalls those artist romances of which we frequently hear, but which are rarely verified in fact. Epstein has, however, become a distinctive personality in the British art world. . . . It is indeed interesting to speculate as to what might have been the artistic fate of Jacob Epstein had he remained in America. Coming from the seething East Side, that great anonymous reservoir of struggle and aspiration, he had the good fortune to establish himself in a community where his genius was quickly recognized, and where within a scant decade he attained celebrity. Could he have accomplished as much, or more, had he remained in New York, and how would his genius have developed in his native land?"

—J. O'C., Jr.





## *Painting on Metals*

BY BUELL MULLEN

**I**T takes time for art to reflect the turmoil of new concepts, the upheaval that comes with new understanding of natural laws, for in portraying man's reactions art must wait until those reactions have been defined and have become so widely felt that they may be expressed in the form of a common symbolism or allegory. Before that symbolism is clarified, however, the part of art that is texture and technique can advance, foreshadowing interpretation.

Texture is as important to art as technique or content. Thus we must turn to the texture of our age to help us record our age—to speak with the basic materials of our civilization. Stainless steel, aluminum, copper, brass, gold—the shining metals—offer a most beautiful and gleaming texture for our creative urge.

It has taken me nearly ten years of extensive experimentation to develop a responsible and responsive technique for painting on metallic surfaces. Of these surfaces, stainless steel and aluminum are the

best, because of their non-corrosive qualities, their tensile strength, their suitability for interior and exterior application.

Murals are an essential form of decoration and should be tied in not only with the form but with the texture of modern architecture. This appropriateness can be found in the use of stainless or aluminum as wall surfaces or panels.

In the method I have developed it is possible to have the areas of color, areas of burnishing, and areas of tooling balance and interplay as part of the composition. The force of the bright color, the shimmering softness of the metal, and the integrity of the basic texture give a depth and beauty not possible to other mediums. The over-all effect of this technique, especially where large panels are employed, is one of great softness combined with great strength. As the hours of the day softly alter the lighting, the effect is subtly changed, and thus painting on steel seems to embody the fluidity of time combined with the security of place.

In painting on canvas or wood, a bond exists between the paint and the surface. In canvases, the interstices between the crossed threads make the bond; in wood, the interstices of the fibres. It is obvious, of course, that paint and stainless or other metals will not remain permanently together unless such a bond is established. That bond is best made by tooling, or undercutting, into the metal, making close and tiny serrations or hooks. In other words, the bond is reversed but just as firm if not firmer than in the case of canvas or wood. I used diamond points at first to do this undercutting, but have been able lately to use an electric tool that penetrates in a series of dots or holes, leaving the edges of the tiny dots twisted and rough so that they do the same work that formerly had to be done entirely by hand. Sandblasting or chemical penetration is not good for the purposes of art: sand-

blasting leaves a series of smooth holes that do not hold the paint permanently; chemicals are dangerous because it is most difficult to be sure they are really removed so that the fine pigments are not injured, or that they have not gone over the edges of the design and so ruined the surfaces that are to be left exposed in the composition.

Everywhere that the design is to employ paint, either in portraiture or murals, this bond of tooling or incising must be carefully and closely made. In the original charcoal sketch all the areas are carefully planned and considered, and they require precision in the final form lest the stainless or aluminum be marred. Sometimes the cutting is extended for additional interest in the composition, for the cutting may be handled in many ways and have different effects that add to the flexibility of the form. Burnishing in various directions enhances the interest as a contrast to the plain metals. Heavy tooling and grinding are also to be employed to advantage in some instances.

The finest pigments are used, and the painting proceeds with any desired tech-

nique in the prepared portions. The final varnishing, because of the difficulty of obtaining pure gums or resins, I have found best done with certain synthetics. These are colorless and water-clear and have been extensively tested for years for both interior and exterior use. It is essential to have fine pigments, for if they are good, they will last indefinitely. The Fogg Museum has discovered that it is the filtration of light through the pigment that destroys it, so now they are placing thin sheets of stainless or aluminum behind the old masters to preserve them. With stainless, especially, therefore, the deterioration of paintings due to time is materially lessened.

In the tests we made of painting on metal, we found that the life of a painting on metal, compared with the life of a painting on canvas, was twice and almost three times as great. Where the laboratory test showed the life of a canvas under speed-up conditions to be about five hundred years, the life of the painting on the metals, properly prepared, was nearly fifteen hundred years. Our tests included all extremes of temperature, from a snow bank to immediate placing on a hot radiator; from dryness to dampness; from expansion to contraction; from sunlight to darkness. So, by painting on metals, even the ravages of time are obviated tremendously.

The reason for stressing the need for care in the preparation is so that it may be developed successfully. I realize that any research I have done, or any method I have evolved, is only a step forward, and that there are others to whom I have only opened the way. I have never attempted to hold this knowledge for myself by patent or by withholding the essential idea of the bonding. All that I ask is in the name of art that the honesty of artisanship be observed. The technique is dependent upon this for success in time, rather than a momentary effect.

Modern architecture is just beginning



BUELL MULLEN

The mural on stainless steel, 10 feet in height, which appears at the beginning of this article, was created by Buell Mullen for the conference room of the recently constructed glass and aluminum tower of the Federal Telecommunications Laboratories at Nutley, New Jersey. The design symbolizes the evolution of creative thought, from the appearance of the first idea in the universe, through man's quest for reality.

Mrs. Mullen paints both murals and portraits on metals. Her murals on stainless steel have been installed at the Library of Congress, the United States Naval Academy, the Ministry of War at Buenos Aires, Argentina, the Ministry of Communications in Rio de Janeiro, Brazil, the G. D. Searle Company laboratories, and at the Great Lakes Naval Training Stations. The subjects for her portraits on various metals include General John J. Pershing, General George C. Marshall, Admiral Ben Moreell, Eugene Ormandy, Jacqueline Cochran, Nelson Eddy, and Vilhjalmur Stefansson.

The wife of a Chicago painting contractor and mother of three grown children, Mrs. Mullen maintains studios in Chicago and New York. She has studied at the Audubon Tyler Art School, the British Academy, with Petrucci and Lipinsky in Rome, and with Cucquier in Belgium. She has exhibited in Paris and Rome and at The Art Institute of Chicago; has had one-man shows at the Findlay Gallery in Chicago, the Ferargil Galleries in New York, and the National Collection of Fine Arts in Washington, D. C. At present she is working on a group of panels with the theme, "Altar of Steel."



to use fully the possibilities of stainless and aluminum. There are one or two structures already erected, employing the metals for their own beauty and integrity, as the material for the entire building. Most architecture is still designed to carry stone, marble, tile, and terrazzo—in other words, mud balls. The future architecture will deal with what might be termed shell-construction, where sheets of the metals

will be placed with an insulating material between, and the walls thus become narrow and light. Gleaming buildings will spring upward, delicate and shimmering, on half the construction of today. And when stainless steel and aluminum replace the old-time heavy beams and trusses, architecture will enter on a renaissance—once more, like the cathedrals of old, springing upward.

## THE ELECTORAL COLLEGE AND AMERICAN DEMOCRACY

BY DAVID A. SHANNON



DAVID A. SHANNON

In an election year the American citizen hears and reads a great deal about democracy. No candidate for public office in the twentieth century can deny democratic principles, and yet very few candidates after their election have done anything to amend the electoral

college system—a feature of our method of electing the President that is incompatible with the ideas of democracy. The powers of the executive have increased tremendously during the last hundred years, but despite this increased power the American people choose the occupant for that very important office in the same manner as they chose their relatively weaker executives of the early nineteenth century.

The fifty-five men who met at Philadelphia in the spring of 1787 with the authority to amend the Articles of Confederation, but who instead wrote a new constitution, were certainly not democratically inclined. They wrote a constitution that vested more power in the executive than democrats at the time thought desirable, and they endeavored to remove the President from the people by as many levels of government as was thought acceptable. Although there was general agreement that the President should not be elected by direct democratic procedures, there was general disagreement over just

what exact method should be employed; only a daring few held that the chief executive should be elected directly by the electorate. Some suggested that the President be elected by one or the other, or both houses of the federal legislative branch. Others had less democratic suggestions. But, because the disagreement was more over means than ends, the convention could compromise on the electoral college system.

By this compromise the various state legislatures were to choose or cause to be chosen "a number of electors, equal to the whole number of Senators and Representatives to which the State may be entitled in the Congress." Although these electors were to meet separately in their various states, they were known as the electoral college. It was further provided that a majority in the electoral college would be necessary to elect the executive, but that if there were no majority, the House of Representatives, voting by states, would select the President and Vice President from among the top three candidates. At the time it was thought that in most elections the state electors all would choose local political figures and thereby throw the election into the House. However, only twice has this come about, in 1800 and in 1824. The growth of political parties and the movement toward greater democracy subverted the purposes of the founding fathers soon after their handiwork became the supreme law of the land.

### ORIGINAL PLAN SUBVERTED

The men at Philadelphia in 1787 did not foresee the political party system which

we have seen in action at Philadelphia in 1948. But political parties arose very quickly, getting their impetus from the struggle over the adoption of the constitution. It was of course necessary for the new parties to instruct the electors in the various states how to vote, and the electors soon became only rubber stamps of the dominant political parties of the state legislatures. The legislatures, in turn, looked to the political caucus in Congress for guidance in the choice of candidates. The national nominating convention succeeded the congressional caucus, but the electors continued to be rubber stamps. Thus the rise of political parties shattered the intentions of the constitutional convention: the President of the United States was not to be chosen by a small group of calm and dignified gentlemen, twice removed from the electorate, deliberating solemnly.

The purposes of the founding fathers also were defeated by the extension of the suffrage and the gradual transfer of the choice of the electors from the state legislatures to the electorate. By the terms of the constitution the state legislatures could choose the electors as they saw fit, and most of the legislatures appointed them rather than conduct an election for electors. Democratic forces, however, demanded that the choice of electors be by general election, and they soon won their point. By 1824 the electorate of all but six of the states chose the presidential electors, and by 1832 only South Carolina still appointed its electors by legislative action.

By the end of the first third of the nineteenth century, democratic forces had liberalized the electoral college system into the system we still have today. No real changes have been made in the system since that time, for there is little more that can be done within the extant framework; further democratization must come through constitutional amendment changing the election of the President to a popular basis.

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David A. Shannon joins the history staff at Carnegie Institute of Technology this fall as instructor, coming from the University of Wisconsin, where he has been doing graduate work toward his doctor's degree. He served in the United States Air Force ground crew for three years, two of these in Europe. After graduation from the Indiana State Teachers College in 1941 he taught high-school history in Indiana for two years.

#### THE SYSTEM HAMPERS

How has the electoral college method of electing our Presidents hampered the will of the majority of the people, despite the fact that the electors only reflect the desires of their constituents? It is possible for a presidential candidate to receive a majority of electoral votes and yet not receive a majority (more than half) or even a plurality (more than any other candidate) of popular votes. This is because the electoral vote does not reflect the amount of popular majority within the states, since all of a state's electoral vote is cast for the candidate who receives the majority vote in the state.

Thus, consider the case of States A and B, which have the same number of electoral votes. State A may poll an 80 per cent majority for Candidate Dewey this November, and accordingly State A's electoral college as a whole will vote for Dewey; the people of State B may elect Candidate Truman by a 51 per cent popular majority, and State B's electoral college accordingly casts its vote for Truman. Thus, as far as these two States are concerned, Truman's electoral vote equals that of the actually more popular Dewey—when it comes to adding up the electoral votes for the presidency. This situation is not just a remote possibility: in ten of the twenty-six presidential elections since 1844 the winner has not received a majority of the popular vote. And in two elections, that of Rutherford B. Hayes in 1876 and Benjamin Harrison in 1888, the winner did not even have a plurality of the popular vote. These two American Presidents held office despite the fact that their opponents received more votes at the democratic polls than they.

The election next month will be complicated by the presence of a relatively strong third party, the first important third party in twenty-four years. Whatever Candidate Wallace's popular vote will be, it is almost sure that the electoral vote will not reflect whatever strength he has. Only three third-party candidates have received electoral votes since the Civil War (Weaver in 1892, Roosevelt in 1912, LaFollette in 1924) and in each case their percentage of the electoral vote was much smaller than their percentage of the

popular vote throughout the country.

The United States has traveled far on the road toward political democracy, but the electoral college system remains one of the roadblocks that must be removed before

complete political democracy can be achieved. The principle of "one man, one vote" is applied in America procedurally, but so long as the electoral college system remains it does not apply effectively.

## THE PURSUIT OF HAPPINESS

THE arts, crafts, and aspirations of the Pittsburgh community went on display last month at Carnegie Institute in a very extensive exhibit that opened on September 13 to herald the arrival of the Freedom Train and continued through Pennsylvania Week, the seven days ending with October 2.

The program was sponsored by the Institute and the Allegheny Conference on Community Development, with a large number of public and private organizations participating.

The Community Activities Exhibit, as it was called, followed a "Pursuit of Happiness" theme, both in civic improvements and in leisure-time activity, and included some forty different displays scattered throughout the first floor of the Institute.

Assembled in one spot for the first time were all the models, photographs, drawings, and diorama of the complete \$500-million civic-improvement program planned for the Greater Pittsburgh area. Included were scale models of the Penn-Lincoln Parkway, Point Park, Water Street Improvement, Greater Pittsburgh Airport, Conemaugh Dam, and Dravosburg Bridge; also exhibits showing the long and winning fight for smoke control, accomplishments and needs in public housing.

On the evenings of September 13-15, again on the 27th and 28th, and on the two Sunday afternoons, artists and craftsmen of this section were to be seen painting, weaving, modeling, enameling, stone



FOLK DANCING IN THE MUSIC HALL FOYER

and wood carving in various Halls. The Museum preparators came from their laboratories to mount insects, show minerals, model mammals, mount birds and plants, chip out fossils, and mold flowers from wax.

Prize winners from the Associated Artists exhibits of the past five years were on display in the freshly painted yellow-and-grey

Hall of Useful Arts and work of the Tam O'Shanters and Palettes, the Saturday art classes at the Institute, was also on exhibition.

The Amateur Astronomers Association exhibited a number of telescopes they themselves had made, and explained the intricacies of their favorite hobby.

The Dinosaur Guild, the new organization composed of the young "cager beavers" who organized the Dinosaur Ball last May—which, as you probably know has been voted one of the ten best parties of the year by the International Stewards and Caterers Association—distributed leaflets announcing plans for the Dinosaur Ball of 1949 and inviting anyone interested to join in making preparations.

Dinosaur Hall appeared in a new light with colored rays casting eerie shadows upon those monster bones.

The evenings of the 27th and 28th closed with ballet and folk dancing presented by local dance groups in the Music Hall, followed by square dancing in the foyer of the Hall, with the public joining in the figures.

## THE COMMUNITY ACTIVITIES EXHIBIT



PITTSBURGH OF THE FUTURE WAS ON DISPLAY AT THE INSTITUTE LAST MONTH



DEMONSTRATIONS OF VARIED MUSEUM TECHNIQUES PROVED INTERESTING

## THE STORYBOOK PUPPETEERS

By MRS. RUDOLPH FISCHER

*An ancient art, new to each generation, is being thoroughly enjoyed at the Library.*

PROGRESSIVE schools, churches, and libraries are thinking, experimenting, and using puppetry to interest children—the 1948 application of an old, old idea.

It is impossible to know just when the first puppets were made; even historians disagree on the subject. Some of them say that the earliest puppets are those excavated from the tombs of Egypt, where puppetry first appeared in the form of animated idols. These were huge statues that stood in the temples and were worked from within by the priests who, by means of levers or strings, could make the idols turn their heads, lift their arms, or go through any other motion to indicate the desired answer to the question asked by the worshipper. Small jointed figures with strings attached have been found in Egyptian tombs, showing that some form of puppet was also used for amusement.

The Greeks inherited both forms of puppetry from the Egyptians, although more stress was placed on the puppet used for amusement. Small jointed figures carved out of ivory and wood were unearthed from ancient Greek tombs dating as far back as the sixth century B.C.

Though puppetry had been practiced for thousands of years, it was not until 1640 that an Italian, Silvio Fiorello, started the first real puppet theatre. To amuse the wine-makers of the town he invented a tiny figure with a humpback and a nutcracker chin. He named this puppet Punchinello, after Maccus, a well-known Roman clown of that day.

Punchinello became the hero of many romantic and comic plays; he was loved by adults as well as children.

At the beginning of the Christian era we find adherents of the new religion spreading their doctrines by means of animated figures. The people for the most part were unable to read and write, so the priests taught the sacred Scriptures, the stories of the Crusades, and the miracles of the faith by means of puppet shows. These shows, aside from teaching the poor peasant the stories of the Bible, provided one of the few forms of amusement. To many of the peasants the performance assumed greater importance than the church services themselves, which were delivered in Latin, a language they did not understand.

In the sixteenth century the Council of Trent abolished the puppet show from the



MRS. FISCHER AND THE PUPPETEERS BEHIND THE SCENES

church. However, such a great demand for this type of play had grown, that the performances continued outside the church. The shows moved out to the town square, and itinerant showmen quickly assumed an important place in the daily life of the people. Once the puppet show started traveling, it was not long before puppets quickly spread across Europe, and then across the ocean to this country.

There are few records left of the early puppet show in America. We do know, however, that when the European puppeteer came here he found that the Indians were already using a form of puppetry in their religious dances.

Puppetry was, in all likelihood, born of the natural instinct of man for dramatic comment on his experiences. Like man, it has known birth, growth, decline, revival, and by this time we are sure that it, too, is immortal. New values and new applications are constantly being discovered. Its prime importance for our day is as a group activity in secular and religious education and also in recreational programs.

During the past year the children's librarians at Carnegie Library of Pittsburgh have been using an occasional puppet show as an added attraction with the regular story hours. Not only did the boys and girls indicate an increased interest in the stories that were dramatized, but they also began to ask how puppets were made.

As a result, a puppet club was organized by the Central Boys and Girls Division staff to provide constructive summer activity and at the same time enable the Library to acquire a parade of puppets capable of interpreting the well-known storybook characters. The club christened itself "Storybook Puppeteers of the Carnegie Library of Pittsburgh," and officers were elected to organize the business of the group. Helen Turk is the president.

Every Tuesday afternoon some ten boys and sixteen girls, on an average, met in the Carnegie Library School classroom adjoining the Boys and Girls Department. There they made fist puppets, designed sets, and wrote scripts. A Treasure Box provided a great source of interest as club members attempted to keep it filled with buttons, yarn, marbles, sequins, or bits of material—anything that could be used to dress or decorate puppets. Mrs. Rudolph

Fischer, who has worked for some time with puppets as a hobby, taught the children how to make and manipulate the marionettes and their theatre, and Laura E. Cathon, head of the Boys and Girls Division at Central Library directed the club.

The Storybook Puppeteers provided a valuable contribution to Pursuit of Happiness Day at Carnegie Institute on September 13 by giving three performances of *The Frog Prince* and *A Princess on a Pea* in the Central Boys and Girls Room before spell-bound young audiences that totaled over five hundred.

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#### CALENDAR OF EVENTS

(Continued from page 67)

his newest colored movies and comment on the fantastic, dreamlike world they reveal.

#### I LIKE TO LOOK AT IT—November 8

Homer Saint-Gaudens

The director of the Department of Fine Arts at Carnegie Institute will discuss Painting in the United States, 1948, showing paintings from the exhibition to illustrate his remarks.

#### ORGAN RECITALS

CARNEGIE INSTITUTE MUSIC HALL

SATURDAYS AT 8:15 P.M.

SUNDAYS AT 4:00 P.M.

Marshall Bidwell, organist and director of music, will open the series of weekend organ recitals in the Music Hall on Saturday, October 2. His program will be composed largely of the works of Saint-Saens, honoring the anniversary of the composer's birth. He will also give the first performance locally of *Symphonie de L'Agneau Mystique* by Paul de Maleingreau.

Taking note of Founder's Day at the Institute, Dr. Bidwell will play *Scotch Fantasia* by Macfarlane during the recital on October 10.

On the 23d, among other numbers on the program will be *Evening Idyl* by Bidwell.

The November 6th recital will be devoted to compositions by John Sebastian Bach.

The first Sunday of each month features a mixed program of popular and classical composers, of special interest to young people.

#### STORY HOUR

IN THE LIBRARY

Stories and games for children three to five years old are planned for alternate Wednesdays at 10:30 A.M., in the Boys and Girls Room of Carnegie Library, set for the 13th and 27th this month. Mothers who accompany their children to story hour are offered interesting talks by Library staff members.

Every Saturday morning at 10:30, in the Boys and Girls Room of the Library, stories for children are told by Library staff members.

#### BROADCASTS

EACH TUESDAY, 6:45 P.M. FROM WCAE  
(Beginning October 19)



# THE GOOSE HANGS HIGH

By WILLIAM HENRY VENABLE



WILLIAM VENABLE

PROBABLY the migration of no other bird excites as much interest among bird-lovers as does that of the Wild Goose. Late this month and early in November great groups of them are winging their way across the sky in their peculiar V-shaped formation, and the air is filled with their clamor as they go.

The Canada Goose (*Branta canadensis* Linnaeus), the particular species with which this article is concerned, provides perhaps a greater interest than any of the others. Its common names are Cravat Goose, Common Wild Goose, Big Gray Goose, Bay Goose, Reef Goose, Black-headed Goose, Canada Brant, and Long-necked Goose. It ranges in length from 35 to 43 inches and has a black head, brownish-gray body, and long, slender neck.

I shall endeavor to follow *Branta canadensis* in its flight northward, describe its nesting and breeding grounds, then follow it southward to its wintering grounds.

## WINTER QUARTERS

The Canada Goose winters in a large area from southern British Columbia, southern Colorado, southern Illinois, and New Jersey on the north, to southern California, Texas, Louisiana, and Florida, in the south, and sometimes by accident in Bermuda and Jamaica. We shall trace its flight from these regions to its breeding grounds up in the great North.

## NORTH WITH THE SEASON

The Canada Goose affords a typical example of a regular, but slow, migrant. In the spring this bird advances northward at about the same rate as does the season. In fact, the speed of their spring migration seems to be governed by the advance of the isotherm of 35 degrees Fahrenheit, which

apparently is followed closely by the vanguard over their entire trip. Let us take a typical case: from their wintering grounds in parts of Tennessee, Kentucky, Missouri, and Kansas, flocks of geese begin their flight northward. By February 20 they have progressed to sections of southern Indiana, middle Illinois, northern Missouri, and Kansas. By March 1 they begin to fan out over South and North Carolina, Virginia and West Virginia, northern Indiana and Illinois, Iowa, Nebraska, and westward to Colorado. Around March 10 they have spread out from New Jersey up on a line through Philadelphia, through northern Pennsylvania, New York, through Ohio and far northern Indiana and Illinois, Iowa, Nebraska, and Colorado. On March 20 they have advanced to parts of Maine, New Hampshire, and Vermont, through lower parts of Canada and the Great Lakes, up through North Dakota and Montana. By March 30 their vanguard stretches from just below the mouth of the St. Lawrence through Quebec, through the northern tip of Lake Superior and middle Saskatchewan. With April 30 they have reached their breeding grounds, from the Yukon, through the lower tip of Hudson Bay, to Labrador.

## PRIZE WINNER

"Among the essays submitted by high-school students in the 1948 Carnegie Institute Nature Contest was one so outstanding in its scientific content, literary excellence, and arrangement of subject matter as to be well worthy of the prize award," comments W. E. Clyde Todd, Curator Emeritus of Ornithology at Carnegie Museum.

"Although the author, William Henry Venable, a sophomore at Shaler High School, has admittedly drawn from published information, the use made of this source material has been selective and judicious, and the result is a paper that meets recognized scientific standards. Wisely, he treats the migration of the Canada Goose as a whole, and makes no effort to discriminate between the geographical races or subspecies into which it has been divided. He refers, however, to the different route followed by the coast geese as compared with those of the interior. The latter have been described as a different race, *Branta canadensis interior*, with the type specimen in the Carnegie Museum from Port Harrison, east coast of Hudson Bay."





"A haze on the far horizon, the infinite, tender sky, the ripe, rich tint of the cornfields, and the wild geese sailing high"

—William Herbert Carruth

#### NESTING HABITS

They are generally known to breed throughout the more northerly part of Canada, from northern Quebec to the Pacific, mostly within the limits of tree growth, although they also nest to a lesser degree in Labrador and on the treeless shores and islands of Hudson Bay. Their breeding grounds extend northward along the wooded basin of the Mackenzie River. P. A. Taverner says, in C. Gordon Hewitt's book, *Conservation of Wildlife in Canada*, that the Canada Goose nests as far south as Red Deer, Alberta, and until recently it nested at Shoal Lake, Manitoba.

The nesting habits of the Canada Goose are sometimes quite regular and sometimes quite peculiar. Its nest is generally on a mound in marshes, constructed of grass reeds, leaves, and lined with down. On rare occasions old nests of hawks or eagles are appropriated. It lays six to eight white eggs. Although the greater proportion of these birds nests in northern Canada, T. Gilbert Pearson, in *Birds of America*, states he has found their eggs on islands in lakes of North Dakota, and has come upon the young attended by their parents in Oregon and northern California.

Also, surprisingly enough, Coues, in *Birds of the Northwest*, says that they often nest in trees in various parts of the upper Missouri and Yellowstone regions, and

that as he obtained this information from J. Stevenson, of Dr. Hayden's expedition, he considers it to be reliable and authentic. He also says that this fact is common knowledge in Montana, where the inhabitants have expressed surprise that this habit is not generally known. The parents build a nest sometimes at quite some distance from water, and transport their young to the water in their bills.

#### THE FLIGHT SOUTH

Canada geese and some others stay in family groups while the parent birds undergo the peculiar wing moult which renders them flightless while their young are growing, so that both attain full plumage at the same time and so can begin their flight south together. The large flocks, therefore, are composed of many families that band together, and we may probably correctly assume that an old bird leads the group.

When it flies south the Canada Goose starts from its breeding grounds on the vast northern plains and follows the southeasterly trend of the Great Lakes. This route takes it across Pennsylvania over the mountains, so that it reaches the Atlantic coast in the vicinity of the Delaware and Chesapeake Bays.

A study of the geese that winter abundantly in the waters of Back Bay and Currituck Sound, North Carolina, reveals

another important tributary to the Atlantic coast route. Circular 363, issued by the United States Department of Agriculture, says that banding has shown that the principal breeding grounds of these birds are among the islands and along the eastern shores of Hudson Bay. From this region they move south in the fall to the point of lower Ontario between Lake Erie and Lake Huron. Some of the banded geese are recovered in the Mississippi valley, but the great majority are retaken either in their breeding grounds or on the Atlantic coast south of Delaware Bay, showing another instance of long cross-country flight. Although Canada geese migrate abundantly along the coast of New England, the birds taken there do not include any that were banded in southern Ontario. Again, it has been shown by banding that the New England visitants come from other breeding grounds, chiefly Newfoundland and the desolate coast of Labrador, and that their migration is entirely coastwise.

#### FOR PROTECTION

As to the conservation measures taken to protect the Canada Goose, in the Migratory Bird Treaty agreed upon between Canada and the United States in 1913, it is provided that "all wild geese, wild swans, brant, wild duck, snipe, plover, woodcock, rail, wild pigeons, and all other migratory game and insectivorous birds which in their northern and southern migration pass through or do not remain permanently the entire year within the borders of any state or territory, shall hereafter be deemed to be within the custody and protection of the Government of the United States and shall not be destroyed or taken contrary to regulations hereinafter provided therefore." The shooting of these birds is prohibited before sunrise and after 4:00 P.M. The Migratory Bird Treaty of July 3, 1918 is substantially the same in idea, with a few more rulings added, including regulations forbidding the luring of game birds with food. Further provisions of this act relate to the shipment and transportation of migratory birds, the propagation of same, and their collection for scientific purposes. The Migratory Bird Conservation Act of 1928 provides for the restoration of marshes along the flyways of the birds.

#### SANCTUARIES NEEDED

The fact that almost all the population of geese and ducks is somewhere in the United States for five to six months is recognized by the Federal government by its attempt to meet the needs of the birds in that period. These birds twice a year span the continent, and considering this, and to enforce the treaties we have with Canada and Mexico, the Federal Government is leading the way in establishing waterfowl refuges and sanctuaries. State and local public agencies as well as private citizens are also developing numerous wild-fowl preserves. The three distinct types of refuges needed are (1) breeding areas; (2) resting and feeding reserves along major flyways between breeding and wintering grounds; (3) wintering areas.

The wildlife sanctuary of the late Jack Miner, of Kingsville, Essex County, Ontario, has made him famous in Canada and the United States. Beside his brick-and-tile factory was a small pond. In 1904 he bought seven wild geese which he enclosed in the pond. In 1908 his first wild visitors, eleven geese, stopped on April 2; on March 18, 1909, thirty-two stopped; in 1910 in two weeks 350 had arrived. In 1911 geese began to arrive "in clouds" on February 20. Each year since then they have come by thousands. Mr. Miner fed them with corn on the cob. During this time he made new and larger ponds, enlarged his old ponds, and added to his farm. The Ontario government has made the Miner farm a sanctuary.

Every year the Canada Goose spans the continent, providing sport and game for our hunters, and thrilling all who, at the first sign of autumn or spring, by day turn their eyes toward the sky to see these splendid birds passing by, or in the quiet of the night hear their call far overhead.

#### ACKNOWLEDGMENT

THE hand-lettering of *CARNEGIE MAGAZINE* on the cover and the changed format of this issue have been designed by William H. Wunderlich, of the staff of Carnegie Institute Press.

Mr. Wunderlich planned the format for the first issue of *CARNEGIE MAGAZINE* when it appeared, over twenty-one years ago.

## THE NEW DEPARTMENT OF EDUCATION AT THE INSTITUTE



ARTHUR C. TWOMEY

INTERESTING prospects for children at Carnegie Institute seem indicated in the recently announced organization of a new Department of Education under Arthur C. Twomey, at the same time that the schedule for this season swings into its usual busy tempo.

The new Department will centralize all educational work at the Institute and will include the following: the classes, programs, and tours conducted by the Fine Arts Department, the Museum, and, to a limited extent, the Library, to which will be added adult groups and local field trips; the exhibits available for borrowing by schools and other outside groups; an audio-visual program that will, among other functions, administer the annual lecture series of the Carnegie Institute Society; public relations in co-operation with the President's office which will handle material for broadcasts, newspaper releases, bulletins, and the *CARNEGIE MAGAZINE*.

The Children's Museum is to move to a new, airy, and bright location, now occupied by Mineral Hall.

Dr. Twomey, who heads the new Department, has been on the ornithological staff at Carnegie Institute since 1937, and is a nationally recognized lecturer on natural science and travel, in connection with colored motion pictures taken during the fifteen scientific field expeditions he has made since 1928 into widely scattered sections of this hemisphere. His audiences have included the National Geographic Society, the Chicago Geographic Society, the University of St. Louis, the Philadelphia Academy of Sciences, and the American Museum of Natural History. Dr. Twomey received his bachelor's degree at the University in his native Alberta, Canada, in 1933 and his doctorate in 1937

from the University of Illinois, where he lectured to both graduate and undergraduate groups for several years. He has lectured on geo-politics and audio-visual education at Carnegie Institute of Technology and regularly since 1938 on biology at the University of Pittsburgh. He is a director of The Academy of Science and Art of Pittsburgh.

Margaret M. Lee continues in direction of the art classes and tours for children and in handling arrangements for outside groups to visit the art galleries, and Jane A. White continues with the science groups and tours. The art teaching staff includes Katharine McFarland, Dorothea Alston, and Joseph C. Fitzpatrick. The Museum teaching will be done by Mrs. Howard Higbie, Olga Catizone, and the various curators. James Kosinski is in charge of the loan exhibits.

The Saturday art classes began September 18, the ten-to-twelve-year-old Tam O'Shanters, selected by their school teachers for promising talent, and the thirteen-to-sixteen-year-old Palettes who have had "Tam" training, both coming in the morning for the painting classes. In the afternoon the thirteen-to-sixteen-year-old Palettes, also chosen by their teachers but new to Institute art classes, come for sketching with crayons until Christmas, thereafter for painting. The enrollment in the classes numbered 1,158 the first Saturday.

The science study groups will begin November 1. These are the Nature Club, composed of children showing special interest or ability, and the Junior Naturalists, open to any child from ten to sixteen years of age.

The tours planned for the sixth and eighth grades of the public schools, arranged in collaboration with the Board of Public Education, consist of an all-day visit at the Institute, half of the time spent under direction in the Fine Arts Department and the other half in the Museum. These tours began on September 27, the first from Rochelle and Allen Schools.

# TRENDS IN CHILDREN'S BOOKS

By VIRGINIA CHASE



VIRGINIA CHASE

CHILDREN'S books are here to stay and money is to be made from them, publishers and booksellers realize. Yes, realize too well, for sometimes it seems that the 1940s can be described mainly as a period of commercialism in the children's book field.

Everyone has wanted to jump on the bonanza band wagon. New publishers have sprung up overnight who, in their eagerness for profit, have done away with as much overhead expense as possible. They hire no editor of children's books to critically examine manuscripts; instead they hire ghost writers—some to "create" in basic English little accounts that are neither reader nor story, of Johnny buying a loaf of bread or Susie walking her dog, and some to seek out noncopyright material for simplification or reprint. This material, hastily gotten together, is illustrated by a good artist who is given a flat fee for the job. Thus three big items of expense are omitted, a juvenile editor's salary and royalty fees to both author and artist. The books sell like hot cakes because they are cheap and because they are colorful.

## COLOR NOT MAIN APPEAL

I should like to take exception to a remark that little children prefer books with bright pictures. It has been my experience that it is the drawing which appeals to the child, not the color. It is the story told in the picture conveyed to the heart of the child that counts. What picture book has been more popular with little children since the day it was published than *Millions of Cats*? There is not one speck of color in the whole book, yet it is hard to believe this is so because the illustrations are so rich in meaning that one remembers

the book as being almost solid color.

Unsuspecting adults have bought cheap books because they appeal to the eye. Then when bedtime comes and the "story" is read aloud, they wonder who could possibly stand to read more than one child's book in a lifetime.

## ABOUT COMIC BOOKS

The sensational has appeared in children's books in the form of comics. The type of story in comic books is not new to this generation or this era. There have always been the Dead Eye Dicks, the Horatio Alger heroes, and Dick Tracys. But the sad part about the comics, aside from their false morals and false conception of life and human behavior, is that they are being endorsed by Associations having the authoritative backing of leading educators. Comics are used for basis of lesson plans in model schools and, as if to serve as a pacifier to the conscience of the endorser, suggested reading lists are tacked on at the end for the child to follow up.

Surely education has dropped to an all-time low if this can be the sincere belief of those adults who make and use the comics for our school children. The book lists themselves prove what little thought is put into their making, for many difficult adult books—not good children's books, and there are many far more suitable—are suggested. In this vocabulary-conscious age it doesn't make sense to expect that a child whose mental and reading ability are on the comic level will suddenly jump from the pulp into reading *The Tree of Liberty*, Prescott's *Conquest of Mexico*, or Lew Wallace's *The Fair God*. Such endorsement is the lowest sort of commercialism, for it endangers a whole generation of innocent children and the future of our country.

## AFRAID OF A NEW WORD?

Too much emphasis is being placed on vocabulary and not enough on stretching or even urging the child to grasp new horizons in his reading. This is not the fault of the teacher alone, whose job it is

to teach the mechanics of reading to children, but rather of unsuspecting adults who think they are doing right but are actually doing harm.

Many parents accompany children to the library. The child frequently selects a book suitable for his age and grade. More times than not, the well-meaning parent looks the book over and says, "You can't read this—here is a word you haven't had yet." How many adults select their books by looking to see if there is one word on a page that is unfamiliar! We see the results of this approach every day. Many a child will not strive to try. His immediate reaction is "I can't," with no feeling of compunction whatsoever. What kind of thinking, reasoning adults are being produced?

The tendency today is to bring reading down to the lowest common denominator by not expecting children to do better, by not giving them the desire to go beyond a certain level. With all that is going on in the world today, it is very dangerous not to probe children into thinking, not to urge them to go beyond their present world of the familiar, to let them remain doped in the opium of simple words and to play only on their physical emotions through such means as the comics.

This picture writing that is so popular today frequently holds up true life values for ridicule rather than for inspiration and respect. What type adults are we training? Even the True Comics fail to portray true history, for there the emphasis is placed, not on the history and the importance of the historical incident upon conditions in the world today, but again on the sensational adventure and overemphasis on the physical prowess of the hero rather than on the fundamental qualities that make a hero.

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Virginia Chase, who has been head of the Boys and Girls Department of the Carnegie Library of Pittsburgh the past two years, is currently serving as chairman of the Children's Library Association, a group within the American Library Association. A graduate of Michigan State College, she received her bachelor's degree from Carnegie Library School in 1931 and her master's degree from Columbia University. She has been connected with public libraries in Duluth, in Queens Borough, New York City, and at Worcester, Massachusetts, and has taught at Drexel Institute.

#### THE BRIGHTER SIDE

So much for the negative side of the 1940s in children's books. There is a positive side. A part even of the negative is positive, for never before have children's books and reading been the concern of so many people and the topic of so many meetings. Surely only good can come out of national interest in what children are offered to read. The laissez faire period is over. Educators and parents are aware that what a child reads helps form his character as much as what he eats helps form his body. New scrutiny of children's books is being made. Do the books contain untrue pictures of peoples or places? A look to the human values in children's books is being made, not only text but in illustration.

Caricature is no longer acceptable where it does not belong. A true picture of races and nationalities is being presented in rightful dignity. New science books are being produced to keep up with recent developments.

I haven't forgotten the War. Many good books about World War II in all its phases appeared. By all standards of criteria for judging children's books, the ones written about the last War are far superior to those which appeared during World War I. There was far less vicious propaganda in books of both fact and fiction, and much more human understanding in the books of 1941-45 than in those of 1917-19. I have made a comparative study of both periods and found these statements to be true.

#### THE FARAWAY DRAWS NEAR

There is hope, then, that even when there is a so-called excuse to be intolerant and vicious, the juvenile book editors held to the standards which they set up for themselves and have continued to maintain. Incidentally, it is astonishing how many pioneers in the field of children's book-editing are still actively engaged in the profession and are fighting the lowering of standards of the commercialists. Most recently the trend is to normal childhood interests. Children have outgrown the War. Three years is a long time in the brief span of childhood. The interest in internationalism is again coming to the fore, this time not with the noble slogan set up by librarians and educators of the 1920s,



"World Friendship through Children's Books," but with an interest that comes spontaneously from the children.

Fathers, uncles, brothers, sisters, and aunts in everyday conversation talk of faraway places where they have been. Children want to know more. Germany and Japan are in the newspapers each day, as well as China, Russia, and South America. Travel to faraway places is nothing today. An overnight trip, and there you are!

The world is close and children want to know their neighbors. More books are being exchanged with foreign countries for translations, more of ours are being sent abroad than ever before. An era of world understanding may come through the simple media of children's books. As Paul Hazard has so ably said in *Books, Children and Men*:

"Yes, children's books keep alive a sense of humanity. They describe their native land lovingly, but they also describe faraway lands where unknown brothers live. They understand the essential quality of their own race; but each of them is a messenger that goes beyond mountains and

rivers, beyond the seas, to the very ends of the world in search of new friendships. Every country gives and every country receives—innumerable are the exchanges—and so it comes about that in our first impressionable years the universal republic of childhood is born."

## MASKS ON PARADE

**A**N ancient Egyptian mummy mask, the tinsel-and-bead mask of a Hindu bridegroom, a present-day baseball catcher's mask, a child's Hallowe'en mask—these and a variety of others will be on display at the Museum the latter part of this month, arranged by Curator James L. Swauger from several of the Museum collections behind the scenes.

The showing will include an American Indian witch doctor's face-covering of wood, a Japanese soldier's helmet, other masks of wood, cloth, and metal from Africa, Alaska, Java, and Europe; also for good measure a stone mask from Mexico, one of leather used by the Anti Indians of Peru, and one of bark that came from the Philippines.

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## Among Our Friends

MEMBERS of the Carnegie Institute Society who joined last fall at its inception and have now been receiving notices are mailing checks to cover their annual dues for renewal with an alacrity that is most gratifying. Already several hundred new names have been added to the membership roll. Carnegie Institute Society, of course, is the new name for The Fine Arts and Museum Society of Carnegie Institute formed last September—this change of name being decided upon simply because it's easier to remember!

While enjoying the colored moving pictures that are to be presented Monday nights this year in the Carnegie Institute Music Hall, the gift of a friend of the Institute will be greatly appreciated by everyone present, although perhaps almost unconsciously. The McClintic Endowment has contributed \$2,000 to the Institute for the purchase of a new moving-picture projector for the Hall.

Mr. and Mrs. Roy A. Hunt, always generous friends of the Institute and life members of the Carnegie Institute Society, have added \$1,000 to their previous gifts.

Mrs. Henry Fisher Clark has given \$450 for the purchase of an exhibit case in the Museum. The case will be used to display the Japanese cloisonné vase presented by Mrs. Clark last spring and pictured on the cover of *CARNEGIE MAGAZINE* for July.

Additional contributions have come for the use of David W. Rial, fellow in archeology and ethnology of the Museum, in his work on ancient Indian relics collected in Utah. Edward Crump, Jr., has given \$200 and Charles B. Shaler, \$100.

Two amounts paid as memberships in the Carnegie Institute Society in memory of William Frew, not previously noted, have been \$50 from Mrs. W. D. George, Jr., and \$25 from Alexander H. Hunter.

### CARNEGIE TECH

During the summer Carnegie Institute of Technology has been the recipient of several large gifts. From the estate of Augusta F. Porter, widow of John L. Porter who was a trustee from 1916 until his death in 1937, has come \$26,989 in addition to previous

gifts for the projected Porter Hall.

Mrs. Florence Barrett Ladd has presented \$25,000 for the George Tallman Ladd and Florence Barrett Ladd Fund supporting a professorship in mechanical engineering.

A gift of \$16,000 has come from the estate of a friend, Wilhelmina M. Townsend, which is assigned to the scholarship fund bearing Miss Townsend's name.

The annual payment by the Chemistry Department at Tech from royalties on *Chemistry of Engineering Materials*, amounting to \$875, has been paid into the Chemistry Department Research Fund.

Professor C. C. Leeds, head of department shops at Carnegie Tech from 1905-40, has given \$148 for the Management Engineering Research Fund.

Gifts of less than \$100 that have come to Carnegie Tech since last April amount to \$713. This sum has been assigned to various established funds.

### THE LIBRARY

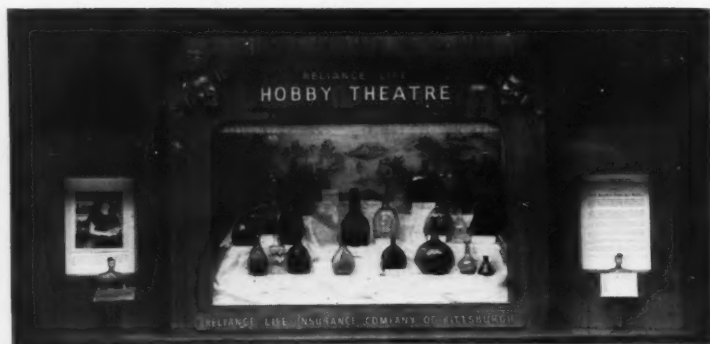
New contributors to the David H. Light Fund to purchase records for the Music Division of the Carnegie Library of Pittsburgh are as follows: Michael D. Bachrach, Mrs. Vladimir Bakaleinikoff, G. Raymond Bell, James M. Bovard, Mrs. Walter Burke, Maude Cooley, Mme. Sylvie Derdeyn-McDermott, Dr. and Mrs. Frederick Dorian, D. Jean Fire, Anne M. George, Mabel L. Gillespie, George J. Gregus, Sidney Heymann, Dr. Coit R. Hoechst, Mrs. Albert Keister, Mrs. E. W. Mudge, Rose S. Port, Helen Rauh, Lucretia Russell, Mrs. William R. Scott, J. A. Stein, Mrs. Arthur M. Tanner, Mrs. Irwin H. Tapper, Leon Weintraub, and Russell G. Wichmann.

*The following types of membership are available in the Carnegie Institute Society:*

<i>Annual Associate Member</i> . . . . .	<i>\$5-\$15</i>
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## A DECADE OF HOBBIES



TEN years ago the Reliance Life Insurance Company opened its Hobby Theatre in a window of the Farmers Bank Building facing on busy Fifth Avenue in downtown Pittsburgh.

Each week for more than five hundred weeks the little Hobby Theatre has shown a different exhibit. Almost every conceivable kind of hobby has been represented.

The list of exhibits shown includes handcraft hobbies in wood, leather, clay, plastics, metals, bone, glass, stone, and there were even a number of items made from toothpicks and burnt match sticks.

Collection hobbies included

Indian relics, rare glass, silver, bells, bottles, fine needlework, mustache cups, buttons, coins, old books, antique firearms and other weapons, to mention only a few.

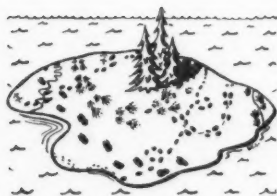
The cooperation of the public in conducting the Hobby Theatre has been remarkable. Hobbyists have unlocked chests and cabinets where their priceless hobbies were stored to place them in our hands so that thousands of others could share their pleasure in seeing these things. We are deeply grateful.

We are striving to present even more interesting exhibits in the future than you have seen in the past 520 weeks.

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## THE SCIENTIST'S BOOKSHELF

By M. GRAHAM NETTING



ISLAND LIFE: A STUDY OF THE LAND VERTEBRATES OF THE ISLANDS OF EASTERN LAKE MICHIGAN. BY ROBERT T. HATT AND OTHERS. Bloomfield Hills, Michigan. Cranbrook Institute of Science, Bulletin No. 27. 1948. 179 pages, 45 illustrations. \$4.00. Carnegie Library reference no. r 505 C86, no. 27.

THE primary function of a natural history museum is to increase man's understanding of the world in which he lives. Sound, thorough knowledge of the plants and animals that comprise natural communities is patently necessary if we are to achieve the harmonious adjustment to varied environments essential to the survival of our civilization.

The once popular heresy that museum research was outmoded by experimental biology was exposed by World War II, which demonstrated that detailed knowledge of the world's animals and plants is not a luxury but a necessity. Thousands of our fighting men survived to become veterans because more or less cloistered scholars had classified and investigated molds, snails, ticks, snakes, worms, and other forms of life without any precognition that their labors might one day affect military campaigns. No scientist is wise enough to anticipate the future applications of his research, and certainly no museum biologist can forecast when his studies may provide the key to some medical, industrial, or social problem. Generally, however, coordinated investigations of specific regions are more usable and significant than lone-wolf inquiries by individual specialists.

Michigan's museums have an enviable history of productive, well-correlated research. They have explored glamorous far countries but they have not overlooked their own backyards. As early as 1909, C. C. Adams and his colleagues at the University of Michigan's famed Museum of Zoology published the now classic *An Ecological Survey of Isle Royale*, which still serves as a model for local biological sur-

veys. The volume before me, a product of studies conducted jointly by Cranbrook Institute of Science and the University of Michigan, adds to the luster of the Michigan tradition.

In northeastern Lake Michigan, like irregularly spaced stepping stones along the route to the Straits of Mackinac, lie some eighteen islands, ranging in size from 58-square-mile Beaver Island to 2.5-acre Pis-mire Island. Their story opens with a brief introduction, including a tabulation of the work of field parties. A further listing summarizes earlier biological observations, beginning with Thurlow Weed in 1847, who must certainly have been intent upon his wood-chopping, for he penetrated the interior of North Manitou without observing a bird or mammal.

Chapter 2, entitled "Geological History," is actually devoted to the last few "seconds" of geological time, the eventful period measured in thousands rather than millions of years, during which the great ice sheet was wasting away and its icy melt forming extensive inland lakes, of which the present Great Lakes are but shrunken remnants. Telltale beaches, at varying elevations on these islands, are nature's graph of fluctuations in water level or other events that joined or separated certain of the islands in the recent past.

The next chapter traces the cultural history of the islands. Here several tribes of Indians left their artifacts and buried their dead. French fur traders, missionaries, and perhaps even farmers came next, leaving among other records of their occupation names unpronounceable by American



M. GRAHAM NETTING

With this review M. Graham Netting begins his fifth consecutive year of monthly articles for *CARNEGIE MAGAZINE*. "The Scientists's Bookshelf" brings the newest scientific books that are of popular interest to the attention of a wide circle of readers.

Mr. Netting is curator of herpetology at Carnegie Museum and assistant professor of geography at the University of Pittsburgh.

frontiersmen. Ile aux Galets, for example, was corrupted to Skilligallee. In the mid-nineteenth century, thousands of trading schooners plied the Great Lakes, obtaining cordwood from the islands, bringing supplies and animal stowaways, and leaving wreckage on the beaches that still serves as shelter for various creatures. Lumbermen were followed by farmers, of whom some were persecuted Mormons. Expanding mainland transportation networks doomed the schooner trade, offshore farming became unprofitable, and today sportsmen and tourists photograph the crumbling homesteads.

In Chapter 5 the individual islands are carefully and adequately described, but I hastened through this to reach the next, devoted to amphibians and reptiles. (Some readers, I have no doubt, will reverse my biased procedure.) Slightly over half of the herpetological species that inhabit the mainland have reached the islands, many by swimming no doubt, but others, such as the terrestrial red-backed salamander, ring-necked snake and milk snake, may have floated within driftwood as eggs or adults. One unsolved puzzle is why the strong-swimming water snake occurs abundantly on some islands and yet is absent on nearby, essentially similar islands. An unfortunate lapse in this chapter is the labeling as a garter snake of Hatt's magnificent photograph of a ribbon snake.

The next two chapters, devoted to birds and mammals, contain so much of interest that it is impossible to do justice to them here. One curious point is that the house mouse and wharf rat appear to like man more than man likes them, for when human settlements on the islands have been aban-

doned these introduced rodents have disappeared also.

Bird students will be interested in some of the unusual choices of habitat reported on the islands. For example, a duck-hawk nest was found on the ground on the side of a sand dune; great blue herons and crows nested close to or on the ground; red-winged blackbirds nested in trees and bushes along island shores where their preferred marsh habitat was lacking, and on one island towhees lived deep in hardwood forest instead of in brushy situations which they favor elsewhere. The efficiency of the starling is evidenced by the fact that, although it did not reach the adjacent mainland until 1927, it had spread to nearly all of the islands by 1938.

The study of insular floras and faunas is an intensely interesting cross-water puzzle. The authors of the present volume review, in Chapter 9, the anomalies of animal presence or absence on the islands. They show that birds, favored by the power of flight, are the most successful colonists, for 87 per cent of those known on the adjacent mainland have been recorded on the islands. Mammals, even though some species are active in the winter and given to wandering over the ice, have been notably less successful in establishing themselves on the islands than the lowly amphibians and reptiles. In general, diversity of habitat, rather than island size, appears to be the most important determinant of faunal variety. Whiskey Island, possibly so named because the mosquitoes and dog flies there are enough to drive a man to drink, has more ground-living animals than Trout Island, which is overrun with ants.

The book, which is beautifully designed and printed, is excellently illustrated with superb photographs, the majority taken by the editor, Robert T. Hatt. The appendix provides a complete listing of the land vertebrates known to inhabit each island. There is an excellent bibliography and a useful index.

Once again Cranbrook Institute is to be congratulated upon having fulfilled its research function in a notable manner. It is to be further commended upon having achieved the second goal of a museum—presentation of scientific results in a manner and format pleasing to layman and specialist alike.

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